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Floral evolution.—In a series of papers published in *New Phytologist* during 1911 and 1912, WERNHAM has discussed floral evolution, especially with reference to the phylogeny of the Sympetalae. The last paper²⁵ presents the summary and conclusions, and it is announced that the series has now appeared in book form. The immense amount of material presented cannot be mentioned in a review, but the general conclusion is that the Sympetalae are polyphyletic, having been derived from the Archichlamydeae along 7 distinct lines. The names given by the author to these lines will indicate the relationship of the various sympetalous orders to those of the Archichlamydeae. The lines are as follows: (1) Centrospermae-Primulales; (2) Geraniales-Ericales; (3) Guttiferales-Ebenales; (4) Geraniales (Plantaginales)-Contortae-Tubiflorae; (5) Calyciflorae-Umbelliflorae-Rubiales-Dipsacales; (6) Calyciflorae-Campanulatae; (7) Calyciflorae-Passiflorales-Cucurbitales. There is also a very useful discussion of the method of determining plant affinities and of the principles of classification.—J. M. C.

Resistance against attack of dodder.—By growing *Cuscuta Gronovii* on a great variety of hosts, GERTZ²⁶ has studied various means of protection possessed by plants against the attack of dodder. The main means found are mechanical resistance to penetration, high concentration of oxalic acid, and presence of latex, certain alkaloids, or ethereal oils. Various alkaloids and ethereal oils, in the concentration existing in the hosts tested, vary greatly in their effectiveness from indifferent to rather highly toxic. In comparing his results with rather fully reported results of other workers, GERTZ concludes that different species of dodder vary greatly in their resistance to a given protective substance. He notes the presence of the 3 characters of dodder often reported: resorption of the basal part of the sprout, ability to act in part as an autotroph by chlorophyll development, and impermeability of haustoria to certain toxic materials. This subject is in need of thorough microchemical and physiological study.—WILLIAM CROCKER.

Cercospora beticola.—POOL and MCKAY^{27, 28} have made a detailed study of the parasitism of *Cercospora beticola* on the sugar beet (*Beta vulgaris*), paying special attention to climatic factors and the mode of infection. The leaves that show maximum stomatal opening, both in aperture and in duration of opening, showed the greatest susceptibility to infection. Factors that favor

²⁵ WERNHAM, H. F., Floral evolution, with particular reference to the sympetalous dicotyledons. *New Phytol.* 11:373-397. 1912.

²⁶ GERTZ, OTTO., Über die Schutzmittel einiger Pflanzen gegen schmarotzende *Cuscuta*. *Jahrb. Wiss. Bot.* 56:123-154. 1915. PFEFFER'S Festschrift.

²⁷ POOL, V. W., and MCKAY, M. B., Relation of stomatal movement to infection by *Cercospora beticola*. *Jour. Agric. Research* 5:1011-1038. pls. 80, 81. figs. 6. 1916.

²⁸ ———, Climatic conditions as related to *Cercospora beticola*. *Jour. Agric. Research* 6:21-60. pls. 3, 4. figs. 10. 1916.

stomatal opening, such as temperatures ranging from 70 to 90° F. and high humidity, also chance to favor maximal germination of spores and subsequent growth and therefore lead to severe leaf infection. Such studies as these will do much to lift the fog that shrouds the problem of infection in the field of phytopathology. The term "stomatal movement," of the title, is somewhat unfortunately chosen. The authors have established a relation between infection and stomatal opening rather than between infection and stomatal movement.—GEORGE K. K. LINK.

Addisonia.—This is the title of a new journal issued from the New York Botanical Garden devoted to "colored illustrations and popular descriptions of plants." It is issued quarterly, the first number bearing the date March 1916, and each number will consist of 10 colored plates with accompanying letter press. The subsidy for the journal is furnished by a fund left for this purpose by Judge ADDISON BROWN. This explains the name and also the color of the cover. The annual subscription price is \$10. The illustrations and letter press of the initial number are of the highest order, the plants illustrated and described being *Rhododendron carolinianum*, *Cassia polyphylla*, *Robinia Kelseyi*, *Pachyphytum longifolium*, *Begonia Cowellii*, *Echeveria setosa*, *Columnea gloriosa*, *Fouquieria formosa*, *Maxillaria ringens*, and *Nopalea Auferi*.—J. M. C.

Dimery in Brassica.—Cases in which two or more genetic factors produce independently a single somatic character, or modify it in such a manner as not to destroy its identity, are being reported frequently. HALLQVIST²⁹ gives the results of crossing a form of *Brassica Napus* characterized by undivided leaves, with a form having strongly pinnatifid lobing. The F₂ families showed several grades of lobing in different plants, and in 493 individuals out of 8,296 the recessive unlobed type reappeared, this being almost exactly 1:15. All of the 23 separate F₂ families which make up this total likewise show a very close approximation to the same ratio. The investigation is being continued into the F₃.—GEO. H. SHULL.

Pollen sterility and hybrids.—GATES and GOODSPEED³⁰ have tested the claim that "bad pollen" is a criterion of hybridity by examining certain geographically isolated Californian plants which have had no opportunity for crossing. *Trillium sessile giganteum*, *Scoliopus Bigelovii*, *Dirca occidentalis*, *Ranunculus californicus*, and *Fritillaria lanceolata floribunda* were selected for examination, and remarkably high percentages of bad pollen were obtained. Their conclusion is that such pollen is not necessarily an indication of

²⁹ HALLQVIST, CARL, Ein neuer Fall von Dimerie bei *Brassica Napus*. Bot. Not. 1:39-42. 1916.

³⁰ GATES, R. R., and GOODSPEED, T. H., Pollen sterility in relation to crossing. Science 43:859-861. 1916.